

Evaluation of Patient Safety in Radiation Oncology

Evaluation of Patient Satisfaction in Men Receiving External Beam Radiation Therapy for a Diagnosis of Prostate cancer in Radiation Oncology

A DNP Project

Presented in Partial Fulfillment of the Requirement for the Degree Doctor of Nursing Practice in
The Graduate School of The Ohio State University

By

Kellie Hoffman, FNP, RN, CNP

Doctorate of Nursing Practice Program

The Ohio State University

2015

DNP Final Project Committee:

Margaret Graham, PhD, RN, FAAN, advisor

Celia Wills, PhD, RN

Usha Menon, PhD, RN, FAAN

Abstract

The objectives of this DNP project were to determine patient satisfaction with current post radiation symptom assessment conducted in the clinic setting and to determine the patient's willingness to participate in a telephone assessment instead of a clinic visit to assess post radiation treatment symptoms.

Specifically the objectives were to:

1. Evaluate patient satisfaction with the current face to face post symptom assessment
2. Evaluate patient acceptability of the use of telemedicine for post radiation symptom assessment.

A small convenience sample of adult males with a diagnosis of prostate cancer who were receiving radiation therapy at the Ohio State University Comprehensive Cancer Center were used to explore the feasibility of the survey approach. CITI trained registered nurses surveyed participants. A 17 item cancer patient satisfaction survey (Jean-Pierre, Fiscella, Freund, Clark, Darnell, Holden, Patierno, 2010) was used that included a question to evaluate the acceptability of using telehealth for symptom assessment. The cancer patient satisfaction survey was specifically developed to assess patient satisfaction in oncology patients in an ambulatory setting. After 1.5 months of data collection, there were six surveys completed and all eligible patients participated in the survey, documenting the feasibility of the telehealth survey approach for moving forward with a larger scale practice change. The results of the survey showed that patients were satisfied with current post radiation symptom assessment in the clinic, but would be accepting of post radiation symptom assessment completed via telehealth. This DNP project provides the necessary feasibility data on acceptability of the survey approach and men's receptivity to a telehealth approach that is necessary as a basis for rolling out a larger-scale

Evaluation of Patient Safety in Radiation Oncology

change in usual care for post radiation symptom assessment for prostate cancer treatment at the OSUCCC.

Chapter One: Nature of the Project

Introduction

Prostate cancer is now the second most commonly diagnosed cancer in American men; and the American Cancer Society estimates that approximately 233,000 men will be diagnosed with prostate cancer in 2014 (The American Cancer Society, n.d.). Radiation therapy plays a key role in the treatment of cancer with over 50% of individuals receiving radiation at some time during the course of their disease (Faithfull, Meyer, Huddart, & Dearnaley, 2001). In 2014, 7,224 total patients were seen in the radiation oncology department at OSUCCC, with up to 200 men per year treated for prostate cancer with external beam radiation therapy. An increasing prevalence of prostate cancer in the OSUCCC is challenging providers to identify more efficient innovative ways to provide care while preserving or improving patient satisfaction with care. The purpose of this DNP final project was to use a quality improvement approach to assess the feasibility of a telehealth survey approach, and for assessing patient satisfaction with the current practice at OSUCCC of post-radiation symptom assessment for patients treated with external beam radiation therapy for a diagnosis of prostate cancer.

Patient satisfaction at the OSUCCC is a current priority area for quality improvement initiatives and Press Ganey is the company that collects satisfaction data at OSUCCC. Press Ganey is a company that specializes in assisting medical facilities to provide high quality, efficient care to improve the patient experience by assessing patient satisfaction (Press Ganey, 2015b). Press Ganey patient satisfaction questions relate to patient wait times, satisfaction with the facility, satisfaction with the care provider and the overall patient experience (Press Ganey, 2015b). Press Ganey Surveys conducted in 2014 at OSUCCC indicated that in radiation oncology, improvement was needed in the area of patient satisfaction. One of the concerns

Evaluation of Patient Safety in Radiation Oncology

commonly cited by patients was the extended wait times in the department. It is common to have 140 to 200 patients, with varying diagnosis through the radiation oncology department in one day. Patients present to the clinic area for radiation therapy, CT simulations, new patient consults, and follow up appointments, brachytherapy procedures and gamma knife procedures. The radiation oncology clinical operations committee identified the goals of decreased patient wait times and increasing patient satisfaction as a high priority for 2015.

Due to the high incidence of prostate cancer diagnosis and patients receiving external beam radiation therapy (EBRT) as treatment, this patient population was chosen for this quality improvement project to more closely evaluate current practices and potential opportunities in patient care provision. A patient satisfaction survey was adapted to evaluate the current patient satisfaction rate with post radiation treatment symptom assessment.

Radiation Therapy Treatment Options for Prostate Cancer

Treatment options for prostate cancer include active surveillance, permanent implantation of radioactive seeds, and EBRT with and without androgen suppression. Active surveillance, seed implantation, or brachytherapy, and EBRT are usually reserved for low to intermediate risk patients with prostate cancer confined to the prostate also called localized disease (Hansen & Roach, 2010). High risk prostate cancer patients are treated with EBRT in conjunction with androgen suppression therapy (Leahy et al., 2013). Treatment for low to intermediate risk prostate cancer is largely based on patient preference. There have only been retrospective studies comparing the survival or recurrence rates of patients participating in active surveillance, brachytherapy or EBRT. Patients who opt for active surveillance will have prostate surface antigen (PSA) levels drawn every six months with a digital rectal exam (DRE) and repeat prostate biopsy no more than every 12 months (National Comprehensive Cancer Network, 2014).

Evaluation of Patient Safety in Radiation Oncology

For the purpose of this DNP project patients receiving external beam radiation therapy were selected to assess patient satisfaction and the feasibility of a telehealth survey approach as a basis for a larger change to usual practice for on-site symptom assessment following external beam radiation therapy for prostate cancer.

EBRT is radiation administered to cells in the form of photons or particles (DeVita et al., 2011). Photons or particles interact with biological material causing ionization (DeVita et al., 2011). The direct effects of radiation result in damage to the DNA in the cells causing them to split (DeVita et al., 2011). Once the DNA is split the cells are no longer able to repair themselves. “Electrons of high energy electromagnetic waves are accelerated so that they hit a metallic target and yield photons” (Blakely, 2014, p. 35). The photons interact with surrounding tissues producing high-speed electrons that split water molecules yielding a hydroxy radical (Blakely, 2014). The hydroxy radical causes damage to the DNA of the rapidly dividing cells resulting in cell death (Blakely, 2014). “EBRT is one of the oldest techniques used to treat prostate cancer” (Blakely, 2014, p. 35) Two advantages include painless treatment as well as low clinical failure (Blakely, 2014).

Prior to receiving radiation treatment for prostate cancer men will undergo gold marker placement under a local anesthetic. Gold marker placement is followed by CT simulation. Once the CT simulation is complete the treatment plan is designed and approved by the physician. The patient then receives daily radiation treatment in an outpatient center. Men receiving EBRT will undergo treatments 5 days per week for 5-7 weeks. Once treatment has been completed a 4-6 week follow up post radiation symptom assessment appointment is scheduled to assess the presence of radiation side effects. No physical exam is performed at this visit. Potential side effects include hematuria, dysuria, hematochezia, loose stools, and lymphedema. Monitoring for

Evaluation of Patient Safety in Radiation Oncology

side effects during external beam radiation therapy is conducted during weekly clinic visits. Post radiation treatment assessment is conducted during a 4-6 week follow up appointment with subsequent visits every 3 to 6 months to evaluate the patient and PSA.

Purpose

The purpose of this DNP project was to assess patient satisfaction with the current post radiation treatment symptom assessment and the feasibility of a telehealth survey approach for symptom assessment, in men diagnosed with prostate cancer and receiving EBRT as treatment, in The Ohio State Comprehensive Cancer Clinic Radiation Oncology Department. Specifically the objectives were to:

1. Evaluate patient satisfaction with the current face to face post symptom assessment
2. Evaluate patient acceptability of the use of telemedicine for post radiation symptom assessment

Significance to Nursing and Healthcare

Health care in the United State is characterized by overuse, underuse and misuse with unsustainable costs, sub-optimal outcomes, and increasing numbers of uninsured citizens (Orzag, 2008). "Coordination of care has been identified as an essential strategy to control costs while achieving value in health care" (Camicia, 2013). Allowing nurses to function to their full scope of practice is one way to address cost containment (Camicia, 2013). "Commentators have long noticed that nurses in general are the health care providers who take initiative in providing patient care: they are key in facilitating communication between the patient, the patient's family, and other health care providers. Thus, by taking on increasingly larger role as coordinators, nurses, and NPs improve health outcomes" (Yang, 2014). The ANA recognizes and promotes the

Evaluation of Patient Safety in Radiation Oncology

integral role of registered nurses in the care coordination process to improve patient care quality and outcomes, and to decrease costs across patient population and health care settings (Camicia, 2013).

The Institute of Medicine (IOM) in the 2003 report *Crossing the Quality Chasm: A new Health Care System for the 21st Century* identified six aims of improvement in the current health care system. One aim is to provide patient centered care. “Providing care that is respectful and responsive to individual patient preferences, needs, values, and ensuring patient values guide clinical decisions” (Institute of Medicine, 2003a). Evaluating patient satisfaction with current care provision in radiation oncology is the first step in determining patients’ needs and values. *Crossing the Quality Chasm* by The IOM (2003a) also identified providing timely care with reduced wait time and sometimes harmful delays for both those who receive and who give care” as an essential aim in improving health care. Ten rules for redesign of healthcare were also identified in *Crossing the Quality Chasm* (2003a). One rule recommends that care should be customized to meet patients’ needs and values. This is further elaborated to state that “the system should be designed to meet the most common types of needs, but should have the capability to respond to individual patient choices and preferences.” Patients should receive care that is convenient and not solely provided in the clinic setting (Institute of Medicine, 2003a). Care provision by the internet as well as by the telephone are specifically identified as additional means to provide patient care (Institute of Medicine, 2003a).

Patient satisfaction is receiving greater attention as a result of the increase in pay –for – performance and public release of data in the Hospital Consumer Assessment of Health care Providers and Systems (HCAHPS) Survey (Kutney-Lee, McHugh, & Aiken, 2009). The measurement of patient satisfaction has become an integral part in determining reimbursements.

Evaluation of Patient Safety in Radiation Oncology

Medicare payment reforms included financial incentives to facilities that utilized a common instrument to report patient satisfaction (Kutney-Lee, McHugh, & Aiken, 2009). These reforms lead to provision of incentives based on patient satisfaction results (Kutney-Lee, McHugh, & Aiken, 2009). The Centers for Medicare and Medicaid services (CMS) require hospitals to report patient satisfaction to qualify for full payments since the implementation of inpatient prospective payment system (IPPS) in 2008 (Kutney-Lee, McHugh, & Aiken, 2009). The incorporation of HCAHPS survey into the IPPS, Pay-for-Performance Plan (PPS), and quality monitoring systems have made measuring and reporting patient satisfaction an integral part of value-based health care (Kutney-Lee, McHugh, & Aiken, 2009). Hospitals now have a financial incentive to increase the quality of care provided to increase patient satisfaction. There is a potential decrease in overall yearly Medicare payment of up to 1% for facilities with poor patient satisfactions scores as determined by HCAPS. This potential decrease in payment can increase to 2% in 2017. A 1-2% decrease in payment can be the difference between a viable business and a failed hospital.

The DNP essentials

The Doctor of Nursing Practice (DNP) essentials determine the principles and foundation for competencies of DNP students (Chism, 2010). The purpose of the DNP essentials is to guide the education of advanced practice nurses to provide nursing practice which is founded in research, science, clinical experience and patient experience (Zaccagnini & White, 2011). This quality improvement project incorporates DNP essentials; I. Scientific underpinnings of practice, II. Organizational and systems leadership for quality improvement and systems thinking, essential III. Clinical scholarship and analytical methods for evidence-based practice, and

Evaluation of Patient Safety in Radiation Oncology

essential VI. Interprofessional collaboration for improving patient and population health outcomes

Essential I: Scientific underpinnings of practice:

The results of this project have implications for practice as it provides information regarding patient satisfaction with the current post radiation symptom assessment follow up. This project helps to inform and potentially alleviate the issues with providing efficient and patient centered care that have been identified as important by various national bodies (Agency for Healthcare Research and Quality, 2010; Institute of Medicine, 2003; Robert Wood Johnson Foundation, 2012). The evaluation of patient satisfaction will allow for a better understanding of patient preferences and serve as the foundation for future evidence based practice changes.

Essential II organizational and systems leadership for quality improvement and systems thinking:

The goal of this quality improvement project was to assist in the development of a care delivery model that meets the current and future needs of the increasing number of patients in the radiation oncology department. Assessing patient satisfaction and the willingness to participate in telephone post radiation symptom assessment, was the first step in implementing a practice change. Although this project was focused on a very specific patient population the results could be used to inform other specialties in the department. Favorable attitudes toward the use of telephone symptom assessment could be used as rationale for implementation of symptom assessment via telephone or other technology modalities. Completion of DNP education provides the nurse with the skill to make facility wide changes that can positively impact the quality of care and patient outcomes (Petersen, 2011).

Essential III: Clinical scholarship and analytical methods for evidence-based practice.

“Scholarship and research are the hallmarks of doctoral education” (American Association of Colleges of Nursing, 2012). This essential requires that the DNP evaluates, integrates, translates existing knowledge and applies it in a clinical practice setting to improve patient outcomes and the patient experience (American Association of Colleges of Nursing, 2012). This quality improvement project has been informed by the evidence that patient satisfaction is a key factor in providing quality healthcare in the 21st century. Assessing patient satisfaction with the current patient care model allowed for the evaluation of patient perceptions regarding care and serve as the foundation for evidence based practice changes. Results allowed for the promotion of timely effective and efficient care.

Essential VI: Interprofessional collaboration for improving patient and population health outcomes.

Essential VI is potentially one of the most important DNP essentials that this project addresses. The doctorally prepared nurse practitioner has acquired the skill to utilize collaborative communication to develop and implement new practice models and guidelines (American Association of Colleges of Nursing, 2012). As discussed previously in this chapter, the prevalence of prostate cancer is increasing, challenging providers to develop new and innovative ways to provide high quality patient centered, timely care. The implementation of telehealth has the potential to be an essential aspect of providing timely and efficient patient care after radiation therapy. The current health care system is fraught with long wait times and delays in receiving care (Institute of Medicine, 2003a). In order to provide safer care the current system

Evaluation of Patient Safety in Radiation Oncology

must be redesigned to include the effective use of technology in patient care (Institute of Medicine, 2003a).

Chapter Two: Review of Literature

Patient Satisfaction

A literature search was completed using CINAHL, EBSCO host, PubMed and the Cochrane databases yielding approximately 90,000 results for patient satisfaction. The search was narrowed to include references to financial reimbursement and patient satisfaction, yielding 658 results. Searching for information regarding patient satisfaction in the radiation oncology department further limited the results to 347 studies. MESH terms included: patient outcomes, cancer care, post radiation symptom assessment, patient satisfaction, radiation oncology, post procedure call backs, symptom assessment, patient centered care, and patient experience and wait times. Filters utilized include: systemic reviews, clinical trials, and meta-analysis. Additionally references from articles found during the initial search were located using the previously noted databases. Older articles were included due to the relevance to the development of the Consumer Assessment of Health Providers and Systems Hospital Survey and to provide insight into how patient satisfaction became a key indicator in evaluation quality of care. There have been multiple studies that look at patient satisfaction with care provision and wait times in various specialties and settings. The results demonstrated that patient wait time did have an effect on the patient perception of the quality of care received.

Patient satisfaction in theory is a personal evaluation of healthcare services and opinions about care that is received (Ware, 1983). It can also be defined as the “recipient’s reaction to salient aspects of the context, process and result of their service experience” (Pascoe, pp. 189 1983). In the 1990’s it was determined that the purpose of measuring patient satisfaction was fourfold: understanding patient experiences, promoting compliance with care, problem identification in health care, and evaluation of services provided (Sitzia, 1997). In the paper:

Evaluation of Patient Safety in Radiation Oncology

Patient Satisfaction: A Review of Issues and Concepts determinants of patient satisfaction included patient expectations, patient characteristics, and psychosocial determinants (Sitzia, 1997). Patient satisfaction is a core dimension of healthcare quality and patient-centered care (Jean-Pierre et al., 2010). Patient satisfaction included key components such as meeting patient care expectations, quality of life, rapport between patient and provider, adherence to treatment regimen and initiation of complaints. (Jean-Pierre et al., 2010).

Clinicians can move beyond their individual patients and use survey instruments and other tools that invite patients to report collectively about their clinical experiences. Feedback of this sort can provide valid and reliable information about important aspects of doctors' individual practices and can be compared to patients' experiences regionally and nationally (Brook, 1996).

“Early in this century, Ernest Avery Codman made the radical suggestion that we pursue our patients to learn from them the outcomes of their treatment” (Delbanco, 2014). Avedis Donabedian took a next step by suggesting that patients are in a unique position to assess important aspects of the quality of care we deliver (Delbanco, 2014).

Consumer Assessment of Health Providers and Systems Hospital Survey (CAHPS)

In today's healthcare environment patient satisfaction is a key component of reimbursement rates from The Centers for Medicare and Medicaid Services (CMS). In 2005, CMS engaged in a nationwide initiative to make hospital performance information publically available. The goal was to allow consumers to make informed decisions regarding their health care and to incentivize hospitals to improve the quality of patient care provided (Hibbard, Stockard, & Tusler, 2005). In 2005, CMS partnered with the Agency for Healthcare Research and Quality (AHRQ) to develop a standardized instrument for measuring patient perspectives on

Evaluation of Patient Safety in Radiation Oncology

hospital care, known as the Consumer Assessment of Health Providers and Systems Hospital Survey (CAHPS) (Crofton, et al., 2005).

The CAHPS Hospital Survey had three broad goals. First, the survey was designed to produce comparable data from a patient's perspective on care that allowed objective and meaningful comparisons among hospitals. Second, results were to be shared publically to incentivize hospitals to provide an improved quality of care. Third, public reporting served to enhance accountability in health care by increasing the transparency of the quality of hospital care provided in return for the investment (Crofton, et al., 2005).

Prior to implementation of the HCAHPS Crofton et al., (2005) conducted a three state pilot survey to describe the developmental process for the CAHPS Hospital Survey. On January 15, 2003 the original sixty-six question survey instrument was submitted to CMS for approval by the Office of Management Budget (OMB) (Crofton, et al., 2005). After OMB clearance was obtained, the sixty-six item questionnaire was tested as part of a three hospital reporting pilot study. The study was conducted by the Quality Improvement Organizations (QIO) in Arizona, Maryland and New York. The QIO in each state was responsible for hospital recruitment. A total of 49, 812 medical, surgical, and obstetrical patients with an overnight stay were included in the sample. Hospitals were divided in core and non-core hospitals for the purposes of allowing for service line estimates in hospitals designated as core facilities. There were 132 hospitals that participated in the pilot study, 24 were designated core hospitals and 108 were designated non-core hospitals (Crofton et al., 2005). Participating individuals were mailed the CAHPS Hospital Survey questionnaire, with a cover letter and a return postage paid envelop. The response rate for core hospitals was 45% and for non-core hospitals was 35.2%. The total number of responders was 19,720 (Crofton, et al., 2005).

Evaluation of Patient Safety in Radiation Oncology

Currently under the Affordable Care Act (ACA), CMS has correlated Medicare reimbursement to patient satisfaction. Previously CMS mandated that hospitals administer the survey to their patients with no stakes attached to the score (Wilson, 2014). New rules went into effect fiscal year 2013 that mandated that hospitals must annually submit at least 100 surveys to CMS. These surveys enable CMS to assign the hospital a grade. If the hospital performs poorly CMS is permitted to reduce reimbursement rates by up to one percent (Wilson, 2014). In fiscal year 2017 this reduction will increase to 2% (Wilson, 2014). Facilities have the potential to lose \$500,000 to \$850,000 annually due to low patient satisfaction scores (Murphy, 2014).

Not only is patient satisfaction important for financial reasons but also for patient outcomes. Patients that are satisfied tend to adhere to treatment regimens and foster relationships with their care providers, which translates to lower readmission rates, reduced length of stay, and increased savings for the hospital (Murphy, 2014). Hospitals with high patient satisfaction tend to attract more patients than hospitals with lower satisfaction rates (Murphy, 2014). Patients satisfied with their care are more likely to recommend a hospital to family and friends.

Patient Satisfaction and Wait Time

One well documented source of patient dissatisfaction with health care is wait time in the clinic setting. This phenomenon is not specifically confined to healthcare but to all situations involving waiting customers (Comacho, 2006). Press Ganey results in the Radiation Oncology department at The Ohio State University Comprehensive Cancer Center indicated patient's dissatisfaction with wait time. The changing face of health care has been well documented in recent literature. The IOM report *Crossing the Quality Chasm* (2003a) provides a template of guiding principles that facilitate the ability to stay ahead in a competitive environment. Providing timely care and decreasing delays in patient care received are strategies recognized for

Evaluation of Patient Safety in Radiation Oncology

organizations to remain competitive (Institute of Medicine, 2003a). Increased wait times have been related to a decrease in overall patient satisfaction with care provided (Comacho,2006).

Comaco (2006) conducted a cross-sectional observational study involving 2,535 patients in two primary and 16 specialty care clinics over a 6 month period. Data was collected using a validated survey method. Perceived waiting times were recorded by patient self-reporting after the clinic visit. Only patients that waited for 75 minutes or less (N=2,444) were selected for analysis. Mean total wait time was estimated to be 21 minutes. Results demonstrated that clinically significant drops in satisfaction may be observed after one hour of waiting (Comacho, 2006).

Bluestein et al. (2014) collected patient satisfaction data from a sample of 11,352 survey responses returned by patients over the course of one year across 44 ambulatory clinics at a large academic medical center. The HCAPHS survey tool was used to collect patient satisfaction data on ambulatory patients. The patients received a survey in the mail following an ambulatory visit. Questionnaires contained 46 questions measured on a 5 point Likert scale. The response rate was 23.06 % or 11,352 respondents. There were 13 questions that were used to determine the relationship between patient satisfaction and wait times. The 13 questions pertained to clinical care received and the clinical staff. Patient wait times were divided into five categories; 0-5 minutes, 6-10 minutes, 11-15 minutes, 16-20 minutes and more than 30 minutes. Waiting 10 minutes total in the exam room and the waiting area resulted in a 77% chance of receiving the highest satisfaction score. Ultimately the results revealed that wait times are not only an important factor in patient satisfaction but also in the perception of quality care (Bluestein, MD et al., 2014).

Patient Satisfaction Questionnaire

The Patient Satisfaction with Cancer Care Measure (Jean-Pierre, 2010) was used to evaluate patient satisfaction in this DNP project. It was chosen because it was designed specifically for patients receiving cancer related care in the ambulatory setting. Satisfaction items were administered to 891 participants from the Patient Navigation Research Program. Participants were required to have an abnormal breast, cervical, colorectal or prostate cancer screening or a new diagnosis of these cancers without prior history. The data was divided into two datasets. One sample was used to test the latent structure of the Patient Satisfaction with Cancer Care and the second sample was used to validate the structure. Internal consistency was evaluated using Cronbach coefficient alpha. Upon completion of sample one construct validity, the questionnaire was reduced to 18 one dimensional items, which accounted for 62% of the variance in patient satisfaction with cancer related care. Sample two was utilized to confirm construct validity. As in sample one, the result was a 1 dimensional 18 item Patient Satisfaction with Cancer Care Related survey. Sample two testing confirmed the underlying structure of the survey (Jean-Pierre et al., 2010). Internal consistency was evaluated using Cronbach coefficient alpha. The results demonstrated Cronbach coefficient alphas of 0.95 and 0.96 based on standardized items for sample 1 and sample 2 (Jean-Pierre et al., 2010).

The modified Patient Satisfaction with Cancer Related Care Measure was sent to subject specialist for evaluation of grade level appropriateness. This was to ensure that patients would be able to comprehend the meaning of questions when read to them. It was determined that there was not enough text to assess readability. A positive aspect was short sentence structure. Questions were related to only one item, and were stated in plain language (D. Moyer MS, RN

Evaluation of Patient Safety in Radiation Oncology

per e-mail correspondence 03/02/2015). Based on recommendations the word neutral was modified to say no opinion.

Framework

The model that was used to guide this quality improvement project was the *Triple Aim Initiative* (2005). The Triple Aim framework was developed in 2007 by the Institute of Healthcare Improvement to provide a template to enhance health system performance.

(Appendix A) The Triple Aim Initiative is relevant in today's healthcare environment because it addresses the issue of increasing healthcare cost. US health care cost accounts for 17% of the gross domestic product and is estimated to increase to 20% by 2020 (Institute for Health Care and Improvement, 2005).

There three arms to the Triple Aim Initiative:

- Improving patient experience of care (including quality and satisfaction)
- Improving the health of populations
- Reducing the per capita cost of health care.

The Triple Aim Initiative challenges healthcare systems to improve all three arms simultaneously. It is not sufficient to address one issue at a time. The Triple Aim framework (Appendix B) calls for a redesign of the healthcare system beginning with “defining quality from the perspective of an individual member of a defined population” (Institute for Health Care and Improvement, 2005). Assessing patient satisfaction in the Radiation Oncology Department of the Ohio State Comprehensive Cancer Center was the first step toward understanding the perceptions of our patient population. Not only is patient satisfaction important to providers to evaluate the patient's perception of care but also because Medicare reimbursement is correlated with patient satisfaction.

Chapter Three: Methods

Project Design

A survey method was used for this quality improvement project. The patient satisfaction survey consisted of 17 questions rated on a 5 point Likert scale. The questions were read to the participants by a Collaborative Institutional Training Initiative (CITI) trained registered nurse. The patient satisfaction questionnaire utilized was the Patient-Satisfaction with Cancer-Related Care Measure (Jean-Pierre, 2010). This is a patient satisfaction survey designed to specifically evaluate patient satisfaction in patients receiving cancer related care. The survey includes 16 questions related to the quality of care provided and how care provided met the needs of the patient. An additional (17th) question was asked to assess patient comfort level with the symptom assessment survey being administered by telephone. This question was included to assess the feasibility of a telehealth approach to the symptom assessment survey.

Radiation oncology staff nurses interested in volunteering and participating in the CITI training were recruited by Kellie Hoffman CNP, project director/doctoral student, as volunteers to survey patients. The clinic nurses completed CITI training and were trained to administer the patient Satisfaction with Cancer Related Care Measure by Mrs. Hoffman.

Sample

The sample included men diagnosed with prostate cancer who chose external beam radiation therapy as a treatment option. Inclusion criteria included men receiving EBRT either solely as their treatment or in conjunction with androgen deprivation therapy. Exclusion criteria included hearing impairment, limited English language skills, and cognitive impairment.

Evaluation of Patient Safety in Radiation Oncology

Convenience sampling was utilized. All men that were eligible were screened to determine their willingness to complete a patient satisfaction survey.

In an effort to maintain patient privacy during the recruitment process there was no demographic information collected. The survey process continued for a two and a half month period from January 1, 2015 to March 15, 2015 in order to provide a time-limited period in which the feasibility of the survey approach could be assessed. During that time a 100% response rate was achieved, demonstrating the feasibility of the survey approach.

Methods

Participants were recruited during their radiation therapy in the outpatient clinic of radiation oncology. Potential participants were recruited by co-investigators Kellie Hoffman CNP and Dr. Douglas Martin. Patient satisfaction was collected using the Patient-Satisfaction with Cancer-Related Care Measure. Patient satisfaction information was documented on a de-identified questionnaire. The nursing staff assigned to the GU primary care team were recruited to collect satisfaction data. Each individual was required to complete the Collaborative Institutional Training Initiative (CITI) prior to involvement. Key personnel were instructed by Mrs. Hoffman in the administration of the patient satisfaction survey. The doctoral student trained the nurses in explanation of the quality analysis project, administration of the survey and answering potential questions. Participants were informed that no identifying information would be collected. Data was collected by key personnel; Ian Moore, BSN, Jessica Link, BSN and Kristi Frenken, BSN, immediately after post treatment symptom assessment was complete.

All records containing patient satisfaction data were stored in a locked file with only the project director allowed access.

Evaluation of Patient Safety in Radiation Oncology

It was anticipated that there would be a potential unwillingness of men to participate in the project due to concern about staff being aware of patient answers. This was a potential barrier since the project director/ doctoral student was also a nurse practitioner providing care in the clinic. The concern was addressed by having the patient satisfaction data collected only by individuals not involved in providing patient care in the clinic area. It was anticipated that this data collection measure would allow patients to speak more freely about their opinions of their care. During the recruitment phase, participants were informed that care providers would not be present during data collection and that there would be no information attached to the patient satisfaction responses that could make them potentially identifiable to their care providers. Participants were informed that the overreaching goal of this project was to identify opportunities for improvement in patient care within the a longer term goal of potentially implementing a telehealth approach for post radiation symptom assessment via.

Instrument

Patient satisfaction data was collected using a modified Patient *Satisfaction with Cancer-Related Care Measure*. This survey was created by Jean-Pierre et al., 2010 to evaluate the full course of cancer related care, from initial abnormal testing to treatment for diagnosed cancer. Patient satisfaction data is a key component of outcome measurement in the National Cancer Institute sponsored Patient Navigation Research Program to reduce disparities in cancer related health care. This is a patient satisfaction survey designed to specifically evaluate patient satisfaction in patients receiving cancer related care. This survey was selected due to an overreaching goal of the survey was to assess experiences of all patients regardless of socioeconomic status. This survey was proven to be valid in diverse racial and ethnic and socioeconomic backgrounds. The survey includes 16 questions related to the quality of care

Evaluation of Patient Safety in Radiation Oncology

provided and how care provided met the needs of the patient. There was one additional question (17) that evaluated the participant's opinion of symptom assessment via telephone.

Jean-Pierre et al., (2010) conducted a multisite patient navigation research program study to develop a Patient Satisfaction with Cancer-Related Care Measure designed to specifically measure patient satisfaction in patients receiving cancer related care. The goal of development was to create a patient satisfaction survey that included satisfaction with care from evaluation for cancer to treatment of diagnosed cancer. The intent was to develop a Patient Satisfaction with Cancer Measure that was able to address satisfaction with the screening process, ability to address issues that minority populations face when receiving cancer related care, and relevance among navigated and non-navigated patients. Patient satisfaction was measured on a five point Likert scale; 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree. (Jean-Pierre et al., 2010).

Chapter Four: Findings

Results

The objectives of this DNP project were to determine patient satisfaction with current post radiation symptom assessment conducted in the clinic setting and to determine the patient's willingness to participate in a telephone assessment instead of a clinic visit to assess post radiation treatment symptoms.

Specifically the objectives were to:

1. Evaluate patient satisfaction with the current face to face post symptom assessment
2. Evaluate patient acceptability of the use of telemedicine for post radiation symptom assessment.

A feasibility survey of patients who received EBRT in the Radiation Oncology Department at The Ohio State University Comprehensive Cancer Center was conducted to assess patient satisfaction with post radiation care provided and to obtain data on the level of patient comfort with a telehealth approach to symptom assessment. The survey results are available in table form in Appendix C.

Results of the survey revealed that this sample of patients perceived that the care that was provided met their needs. The mean survey responses on questions 1-16 was 4.5 on the 1 to 5 rating scale that was used with higher score indicating higher satisfaction. To identify a typical response of a person to the first 16 questions, an average was computed. The Standard deviation was 1.2, the median score was 4.97. The minimum score was 2.13 and the maximum was 5.0. The majority of participants responded that they were satisfied with the care provided during

Evaluation of Patient Safety in Radiation Oncology

their post radiation treatment symptom assessment. There was one individual that was not pleased with his care. This dissatisfaction could have been due to care provided by other providers, symptoms he was experiencing or frustration with the diagnosis of cancer and his treatment outcomes. The 17th question referred to the patient acceptance of the use of telemedicine for evaluation of post radiation symptom assessment.

The following table displays the frequency and mean score for each question.

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Mean
I felt that my health concerns were understood.	5		1			4.67
I felt that I was treated with courtesy and respect	5	1				4.83
I felt included in decisions about my health	5		1			4.67
I was told how to care for myself	5				1	4.33
I felt encouraged to talk about my personal health concerns	5		1			4.67
I felt I had enough time with my care provider	4	1			1	4.17
My questions were answered to my satisfaction	5	1				4.83
Making an appointment was easy	5				1	4.33
I knew what the next step in my care would be	5			1		4.5

Evaluation of Patient Safety in Radiation Oncology

I feel confident in how I dealt with the health care system	4	1		1		4.33
I was able to get the advice I needed about my health issues	4	1		1		4.33
I knew who to contact when I had a question	4	1			1	4.17
I received all of the services I needed	5			1		4.5
I am satisfied with the care I received	5				1	4.33
The providers seemed to communicate well about my care	5			1		4.5
I received high quality care from my providers	5			1		4.5
I would be comfortable with this symptom assessment being conducted over the telephone.	4			1		

The survey can be divided into four broad categories: satisfaction with the health care system, satisfaction with provider's ability to address health concerns, satisfaction with the quality of care received and acceptability of the use of telehealth as a post radiation symptom assessment modality.

Satisfaction with the health care system

The goal was to assess patient satisfaction with the current post radiation symptom assessment, and the feasibility of a telehealth survey approach for symptom assessment. Evaluation of patient acceptability of the use of telemedicine for post radiation symptom was of most interest to this DNP project. Questions regarding the health care system

Evaluation of Patient Safety in Radiation Oncology

were included to maintain the original questions of the published patient satisfaction tool (Jean-Pierre et al., 2010). There were two questions included in the evaluation of the healthcare system. There were a total of 12 responses, 75% of the respondents were in strong agreement with the following statements with 25 % of the responses ranging from strongly disagree to neutral.

Ability to address Health concerns

There were two questions related to how well the patients perceived their health concerns were address. There was a 100% response rate with the mean score being 4.66 on a 0- 5 scale. The minimum score was 3 (neutral) and 83% of respondents strongly agreed with the statements listed below. These results demonstrated that overall patients were satisfied with the ability of the provider to address their health care concerns.

Satisfaction with care received

Although individuals diagnosed with prostate cancer may routinely be assessed and treated by urology, medical oncology and radiation oncology, patients were instructed only to document their satisfaction with services provided in the radiation oncology department during their post assessment follow up. Satisfaction with the care received was addressed in 11 questions. Of the 66 total responses approximately 78.8% of respondents strongly agreed with the eleven statements, 4.5% agreed with the following statements and 3.0% were neutral and 7.5% strongly disagreed.

The Use of Telehealth

Question 17 spoke solely to the patients comfort with symptom assessment being conducted over the phone rather than during a face to face visit. This question had an 83%

Evaluation of Patient Safety in Radiation Oncology

response rate. Of the responses received 80% of participants responded that they strongly agreed that they would be comfortable with telephone symptom assessment.

Demographics were not collected as part of this quality improvement project. Due to the nature of prostate cancer it is reasonable to summarize that 100% of the respondents were males over the age of 40. Patients were treated with external beam radiation therapy with or without androgen suppression. The length of treatment ranged from 5-7 weeks. The follow up visit for symptom assessment occurred 4-6 weeks after completion of radiation therapy as per usual practices.

Data collection occurred over a period of 1.5 months from January 1, 2015 to March 13, 2015 at which time 6 surveys were completed and the data collection window was closed. There were a total 102 possible responses to the survey questions. Of these 102 responses 84% of the responses indicated that participants agreed that the care provided was satisfactory. Only 11% of responses demonstrated disagreement that care provided was satisfactory. The dissatisfied respondents were displeased with the care provided by the healthcare provider and logistics related to the navigation of the hospital system itself. Upon further evaluation of the datasets it appeared that there was one individual that either disagreed or strongly disagreed with each of the 17 questions. Due to the low number of respondents the one displeased individual's responses had a greater impact overall on patient satisfaction results. There were 6 participants; five answered all the 17 questions, for an 83% response rate. The mean for all survey responses ranged from 4.33- to 4.5 on a 1-5 Likert scale. The mode and the median for all questions were 5.

Discussion

The high percentage of participants that rated their satisfaction with a 5, the high mean scores on items 1-16, with a median of 4.97 and a mode of 5, demonstrated that patients are satisfied with the current method of post radiation symptom assessment. However there are opportunities for improvement in the care provided.

Further evaluation of the data revealed that questions pertaining to the ease of scheduling, confidence in dealing with the health system, advice about health care issues, knowing who to contact, how to care for self, and receiving all the services needed provide the greatest opportunity for improvement in patient satisfaction. The mean score for above mentioned questions was 4.33 compared with the mean range from 4.5 to 4.83 on the remaining 11 questions. The difference in these calculated means may indicate that health care providers tend to spend more time explaining the diagnosis of cancer rather than focusing on educating patients regarding the treatment and what to expect. It is also reasonable to conclude that patient education related to navigation of the health care system is an opportunity to increase patient-centered care and satisfaction.

Conclusion

Patients diagnosed with cancer are often treated by multiple providers and specialists. Even though patients were asked only to rate their perceptions of care provided during their post radiation symptom assessment visit it may have been difficult for them to differentiate the care that was provided. It is possible that scores reflected overall satisfaction with their entire treatment regimen. Negative feelings caused by other providers as well as a diagnosis of prostate cancer may also be reflected in these responses. The patient satisfaction data does not take into

Evaluation of Patient Safety in Radiation Oncology

account the expectations of care that respondents may have had. In regards to obtaining further valid patient satisfaction results, thought must be given to the best method of data collection.

The Patient Satisfaction with Cancer-Related Care Measure is a tool that has high internal consistency and reliability and has been validated in ambulatory cancer related care treatment areas. However the results we were striving to obtain related to a specific time in the overall treatment regimen, a more focused tool may provide more accurate information.

There were some limitations of the project results. First, the project used a small convenience sample ($n=6$) with the intention of assessing the feasibility of the survey method to assess symptoms and satisfaction. The results cannot be generalized more broadly, but this is not centrally important to the objectives of this quality improvement project for which the results will be used locally within the clinic only, to inform future changes to clinical practice. It is possible that the men may have tended to answer survey questions the way that they thought that the staff would want them to answer. While this type of bias cannot be completely ruled out, the use of staff who were not directly involved in patient care to collect the survey data and the collection of data without individual identifiers helped to minimize this potential issue. The single occasion of data collection carries the possibility that uncontrolled external events, such as the patient's current health status or severity of radiation side effects being experienced on a given day, may have influenced the responses to the survey.

Chapter Five

Study Summary

The objectives of this DNP project were to determine patient satisfaction with current post radiation symptom assessment conducted in the clinic setting and to determine the patient's willingness to participate in a telephone assessment instead of a clinic visit to assess post radiation treatment symptoms.

Specifically the objectives were to:

1. Evaluate patient satisfaction with the current face to face post symptom assessment
2. Evaluate patient acceptability of the use of telemedicine for post radiation symptom assessment.

The purpose of this DNP quality improvement project was to assess patient satisfaction with the current post radiation symptom assessment, and the feasibility of a telehealth survey approach for symptom assessment. Patients who receive radiation therapy return to the clinic setting 4-6 weeks after treatment for post radiation symptom assessment. Patient satisfaction has been identified by multiple organizations (Institute of Medicine, 1972; Institute of Medicine, 2003a; Institute for Healthcare Improvement, 2005) as a key component to patient-centered care. The Institute for Healthcare Improvement (IHI) has identified the patient experience as one of the dimensions of the healthcare system that must be addressed to increase quality of care and decrease the overall cost of healthcare (Triple, 2005).

Evaluation of Patient Safety in Radiation Oncology

Nursing has been identified as fundamental to the reform of the current healthcare system by the IOM (2011), the American Association of the Colleges of Nurses, and the US Department of Health and Human Services (2009). The IOM, in its 2003 report *Health Professional Education: A Bridge to Quality* identified a five core competencies for healthcare professionals, essential to the improvement of health care: delivering patient-centered care, working as part of interdisciplinary teams, practicing evidence-based medicine, focusing on quality improvement and using information technology. These core competencies along with the three dimensions of the Triple Aim Initiative (2005): improving the patient experience of care (including quality and satisfaction), improving the health of populations, and reducing the per capita cost of health care were the identified framework for this quality improvement project.

The evidence base for this project was derived from the development and validity testing of the Patient Satisfaction with Care-Related Care Measure. This patient satisfaction survey was developed as an important outcome measure of quality patient care. The survey was developed in conjunction with the NCI Community Oncology Research Program (NCORP) (National Cancer Institute, 2009). NCORP is a national network of multidisciplinary investigators serving as stakeholders in the conduct of cancer research. The overall goal of the program was to bring cancer clinical trials, as well as cancer care delivery research, to individuals in their own communities, generating evidence that contributes to improved patient outcomes and a reduction in cancer disparities (National Cancer Institute, 2009). Additionally the NCORP strives to examine how social factors, financing systems, organizational structures/processes, health technologies, and healthcare provider and individual behaviors affect cancer outcomes, access to and quality of care, cancer care costs, and health and well-being of cancer patients and survivors (National Cancer Institute, 2009).

Evaluation of Patient Safety in Radiation Oncology

The quality improvement project author utilized a survey method for this evidence based practice project. A convenience sampling method was used to collect patient satisfaction data. Eligible participants were males over the age of 18 receiving external beam radiation therapy for the treatment prostate cancer. Volunteer, CITI trained registered nurses administered the patient satisfaction surveys after the post radiation symptom assessment clinic visit. The results of the 17 question Likert scale responses were documented in an Excel database and the overall mean score and a mean score for each patient satisfaction component were tabulated.

The results of this quality improvement project demonstrate that patients are satisfied with the current care provided during the post radiation follow up visit for symptom assessment. The results also revealed that patients would be accepting of telehealth as a symptom assessment tool. Although patients are overall satisfied, there are areas for improvement in patient care. Identified areas include managing the hospital system, knowledge of who and how to contact providers, the perception of time spent with the provider, and knowledge regarding how to care for one's self.

Limitations

The most significant limitation to this quality improvement project was the small number of participants. Although all eligible individuals participated, the length of radiation treatment, the timing of follow up assessment, and the fact that data collection occurred after the holiday season impacted the number of available eligible participants. Data was collected January 1, 2015 to March, 2015. To be eligible to participate in this QI project patients would have to receive external beam radiation therapy November through February. Many patients prefer to postpone radiation treatment until after the holidays, which resulted in a small number of patients eligible to participate.

Evaluation of Patient Safety in Radiation Oncology

There were no demographics collected which could have been confounding factors such as race, ethnicity, education, health literacy and literacy. Demographics could have also been a major factor in satisfaction with the patient's perception of care and the patient provider relationship.

The internal validity of this study could have been impacted by the participant's unwillingness to admit their dissatisfaction with care. Although data collection was completed by individuals not regularly in the clinic setting, limited staffing in the department makes it more likely that the patient had prior contact with the nurse collecting data at some point during their radiation treatment. Social desirability could be avoided by utilizing a computer or hand held device to collect patient data.

Verbiage related to the meaning of telehealth may have been confusing to participants. The term telehealth was defined by the RN administering the survey prior to data collection. The definition was standardized by instructing the nurse reading the survey to read it the same to every participant. Despite efforts to define and standardize the term telehealth, the respondents may have no prior knowledge to the concept of telehealth or how that might look in their healthcare regimen.

Patients diagnosed with cancer are often treated by multiple providers and specialists. Even though patients were asked only to rate their perceptions of care provided during their post radiation symptom assessment visit it may have been difficult for them to compartmentalize the care that was provided. It is possible that scores reflected overall satisfaction with their entire treatment regimen. Negative feelings caused by other providers as well as a diagnosis of prostate cancer may also be reflected in these responses. Responses may have also been influenced by the

Evaluation of Patient Safety in Radiation Oncology

post-radiation side effects that the patient was tolerating at the time that the survey was administered.

Implications for Nursing Practice and to the DNP Essentials

The implications for advanced practice nursing relative to these project findings and patient satisfaction results as it relates to the DNP essentials and overall improvement in the patient experience are significant. This project addresses DNP essentials; I scientific underpinnings of practice, II organizational and systems leadership for quality improvement and systems thinking, essential III, clinical scholarship and analytical methods for evidence-based practice, essential VI interprofessional collaboration for improving patient and population health outcomes.

Essential I: Scientific Underpinnings of Practice

The results of this quality improvement project have implications for practice as it provides additional evidence for improving the current patient care that is provided in the radiation oncology department. Findings from this patient satisfaction survey demonstrated that this specific population has an interest in participating in symptom assessment via telehealth. Collection of patient satisfaction data has been supported and identified as pertinent to improving patient care outcomes and the patient care experience by the IOM and the IHI (Institute of Medicine, 2003a; Institute for Healthcare improvement, 2005). The results also contributed to the framework from the Institute of Healthcare the *Triple Aim Initiative*. Patient satisfaction is being utilized as a means to evaluate the patient perception of care and the patient experience.

Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking

Evaluation of Patient Safety in Radiation Oncology

The findings from this evidence based quality improvement project are intended to transform the existing patient care model so that patient care needs can be better met in the future (American Association of Colleges of Nursing, 2012). Although the project included few individuals, results can be used to identify opportunities to improve the patient experience. Continuation of this project is needed to increase the number of responders which would increase validity of the findings, and the impact on patient care delivery in the radiation oncology department. Education of the doctoral prepared advanced practice nurse provides the skill and knowledge to make organizational and system changes to that can improve the quality of care provided and patient outcomes (Petersen, 2001).

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

“Scholarship and research are the hallmarks of doctoral education” (American Association of Colleges of Nursing, 2012). This evidence based project is the foundation for improving patient outcomes and the patient care experience. This quality improvement project has been informed by the evidence provided by the Triple Aim Initiative as well as the evidence regarding the importance of the patient’s perception of care provided by the Centers for Medicare and Medicaid. The evidence has been implemented in the practice setting by evaluating how patients in radiation oncology rate their satisfaction with care during the post radiation assessment visit. More evidence needs to be collected before improvements will be initiated. The results demonstrated that overall patients are satisfied with the care that they receive in the radiation oncology department. Opportunities identified will be disseminated to the appropriate individuals within the organization so that the patient experience can continue to improve.

DNP essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

Patient satisfaction has been determined to be an integral part of today's health care environment. Hospital reimbursement rates are based on the perception of the patient experience. Satisfaction data is widely available so that potential patients can make informed decisions about where they would like to receive their care. This project specifically addressed patient's perception of care provided in the radiation oncology department. Despite polling a small and specific group of individuals, the results have identified areas for improvement in how patients perceive the healthcare system in general. Continuation of this patient satisfaction survey and dissemination of the results, can continue to evolve to meet the expectations of patients and to improve the patient care experience.

References

- American Association of Colleges of Nursing. (2012). Doctorate of nursing practice. Retrieved January 3, 2015 from <http://www.aacn.nche.edu/dnp/faqs>
- American Cancer Society. (2013.). Cancer facts and figures. Retrieved November 20, 2014 from <http://www.cancer.org/research/cancerfactsfigures/cancer-facts-figures-2013>
- Blakely, D. (2014). Comparisons of external beam radiation therapy, brachytherapy, and combination therapy in the treatment of prostate cancer. Retrieved November 23 2014 from <http://www.bama.ua.edu/~joshua/archive>
- Bleustein MD, C., Rothschild BS, D. B., Valen MHA, A., Valaitis PhD, E., Schweitzer MS, L., & Jones MD, R. (2014). Wait times, patient satisfaction scores, and the perception of care. *The American Journal of Managed Care*, 20, 393-400.
- Brook, R H. (09/26/1996). "Quality of health care. Part 2: measuring quality of care". *The New England journal of medicine*, 335(13), p.966.
- Camacho, F (11/2006). "The relationship between patients perceived waiting time and office-based practice satisfaction". *North Carolina medical journal (Durham, N.C)*, 67(6), p.409.
- Camicia, M. (2013). The value of nursing coordination: A white paper of the American Nurses Association. *Nursing Outlook*, 61(6).
- Chism, L.A. (2010). *The Doctor of Nursing Practice: A guidebook for role development and professional issues*. Boston, MA: Jones and Bartlett Publishers.
- Crofton, C., Darby, C., Farquhar, M., Garfinkel, S., & Goldstein, E. (2005, December). Measuring hospital care from the patients' perspective: an overview of the CAHPS hospital survey development process. *Health Services Research*, 40(6), 1977. Retrieved

Evaluation of Patient Safety in Radiation Oncology

February 14, 2015 from

<http://go.galegroup.com/ps/i.do?id=GALE%7CA140306288&v=2.1&u=colu44332&it=r>

Delbanco, Tom, & Gertis, Margaret. (11/04/2014). A Patient Centered View of the Clinician-

Patient Relationship. *UpToDate*. Retrieved February 28, 2015 from <http://uptodate.com>

DeVita, V. T., Lawrence, T. S., Rosenberg, S., Weinberg, R. A., & Depinho, R. A.. (2011).

DeVita, Hellman, and Rosenberg's cancer principles & practice of oncology (9th ed.).

Philadelphia, PA: Lippincott Williams and Wilkins.

Faithfull, S., Meyer, L., Huddart, R., & Dearnaley, D. (2001). Evaluation of nurse-led follow-up

for patients undergoing pelvic radiotherapy. *British Journal of Cancer*, 85(12), 1853-

1864.

Hansen, K. E., & Roach, M. (2010). *Handbook of evidence-based radiation oncology* (2 ed.).

New York, NY: Springer.

Hibbard, J. H., Stockard J., Tusler M., (2005). Hospital performance reports: Impact on quality,

market share, and reputation. *Health Affairs* 24 (4): 1150-60.

Institute of Medicine. (1972). *Educating the health team*. Washington, D.C.: National Academies of Science.

Institute of Medicine. (2003a). *Crossing the quality chasm: A new health system for the 21st*

Century. Washington, D.C.: National Academies of Science.

Institute of Medicine. (2003b). *Health professions education: A bridge to quality*. Washington,

D.C.: National Academies of Science.

Institute of Medicine. (2011). *The future of nursing: Leading change, advancing health*.

Washington, D.C.: National Academies of Science.

Evaluation of Patient Safety in Radiation Oncology

Institute of Medicine. (2012). *Primary Care and Public Health: Exploring Integration to Improve Population Health*. Retrieved February 10, 2015, from <http://www.iom.edu/Reports/2012/Primary-Care-and-Public-Health>

Institute for Health Care and Improvement. (2005). *Triple Aim- The Best Care for the Whole Population at the Lowest Cost*. Retrieved March, 2015, from <http://www.ihc.org/Engage/Initiatives/TripleAim/>

Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Washington, D.C.: The National Academies Press.

Jean-Pierre, P., Fiscella, K., Freund, K., Clark, J., Darnell, J., Holden, A., Patierno, S. (2010). Structural and Reliability Analysis of a Patient Satisfaction with Cancer-Related Care Measure. *Cancer*, 117.

Kutney-Lee, A., McHugh, M. D., Sloane, D. M., Cimiotti, J. P., Flynn, L., Neff, D. F., & Aiken, L. H. (2009). Nursing: A Key To Patient Satisfaction. *Health Affairs (Project Hope)*, 28(4), w669–w677. doi:10.1377/hlthaff.28.4.w669

Leahy, M., Kirshnasamy, M., Herschtal, A., Bressel, M., Dryden, T., Tai, K., & Foroudi, F. (2013). Satisfaction with Nurse-led Telephone Follow-up for Low to Intermediate Risk

Murphy, Michael, MD. HCAHPS: The true impact of patient satisfaction. *Medical Scribe Journal*. Retrieved March 3, 2015, from <http://scribeamerica.com>

Murphy, Michael, MD. Focus on patient satisfaction: why it matters. *Medical Scribe Journal*. Retrieved March 3, 2015, from <http://scribeamerica.com>.

National Cancer Institute.(2014). *NCI Community Oncology Research Program Questions and Answers*. Washington, DC: Government Printing Office.

Evaluation of Patient Safety in Radiation Oncology

- National Comprehensive Cancer Network. (2014). *NCCN clinical practice guidelines in oncology (nccn guidelines) prostate cancer*. Retrieved August 7, 2014, from http://www.nccn.org/professionals/physician_gls/pdf/prostate.pdf
- Orzag, P. (2008). *The Overuse, and Misuse of Health Care. Testimony before the Senate Committee on Finance*. 110th Congress.
- Pascoe, G. C. (1983). Patient satisfaction in primary health care: a literature review and analysis. *Evaluation And Program Planning*, 6(3-4), 185-210.
- Petersen, S. (2011). Systems thinking, healthcare organizations, and the advanced practice nurse leader. In M. E. Zaccagnini, & K. W. White (Eds.), *The doctor of nursing practice essentials* (1st ed., pp.(37-59). Boston: Jones & Bartlett.
- Press Ganey. (2015a). *Rise Above the Competition with Outpatient Insights*. Retrieved February 28, 2015, from <http://www.pressganey.com/ourSolutions/patient-voice>
- Press Ganey. (2015b). *Transforming the Patient Experience*. Retrieved February 28, 2015, from <http://www.pressganey.com/aboutUs.aspx>
- Robert Wood Johnson Foundation. (2012). *Health and health care in 2032: report from the RWJF futures symposium*. Retrieved August 10, 2014 from <http://www.rwjf.org>
- Sitzia, J (12/1997). Patient satisfaction: a review of issues and concepts. *Social science &*
- US Department of Health and Human Services. (2009). *The Affordable Care Act*. Retrieved September 29, 2014, from <http://www.hhs.gov/healthcare/rights/law/patient-protection>.
- Ware, J., (1983). "Defining and measuring patient satisfaction with medical care". *Evaluation and program planning* , 6 (3-4), 247.

Evaluation of Patient Safety in Radiation Oncology

Wilson, Justin. (2014) Why Patient Satisfaction is an Uphill Climb. *Medical Scribe Journal*.

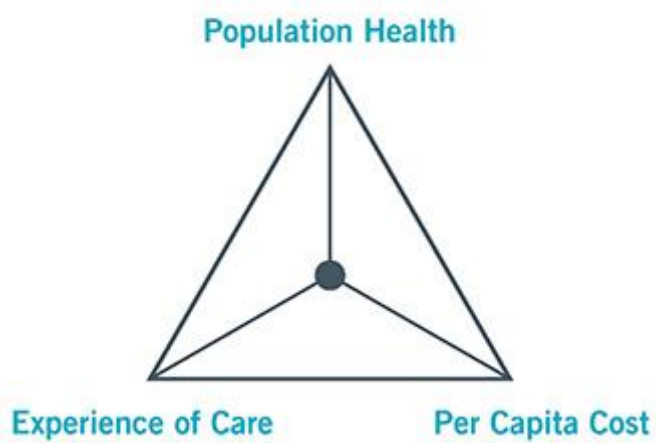
Retrieved March 10, 2015, from <http://scribeameric.com>.

Yang, Y. T., & Meiners, M. R. (2014). Care coordination and the expansion of nursing scopes of practice. *The Journal of Law, Medicine and Ethics*, 42(1) 93-103.

Zaccagnini, M. E., & Edinger, G.M.. (2011). Traditional advanced practice roles for the DNP. In M.E. Zaccagnini, K.W. White (Eds.), *The doctor of nursing practice essentials a new model for advanced nursing practice*. (pp. 349-400). Sudbury, MA: Jones and Bartlett.

Appendix A

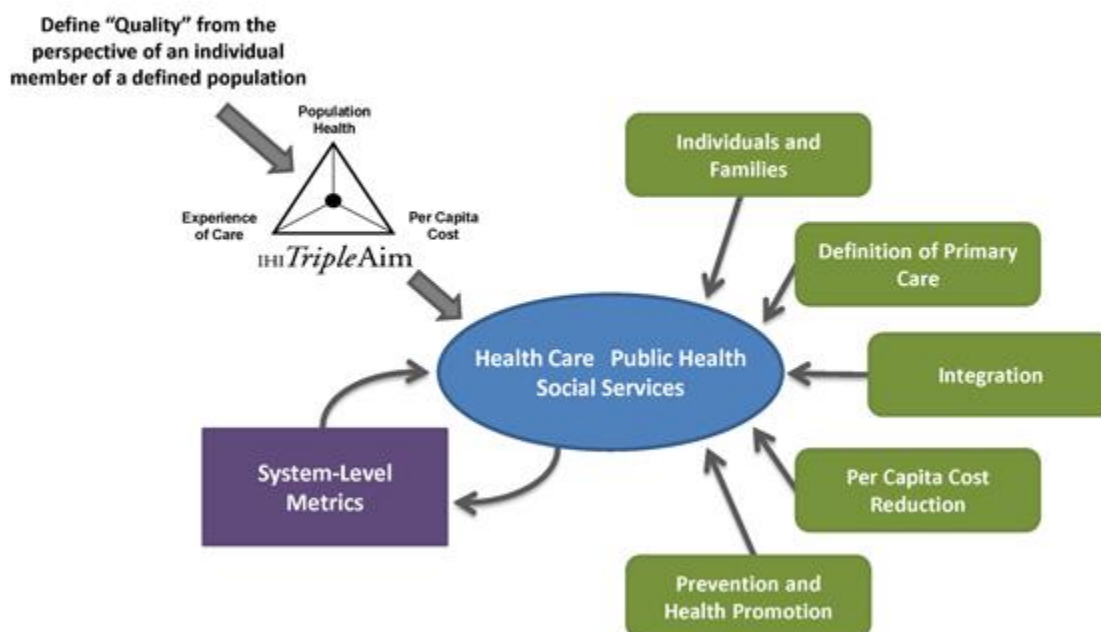
The IHI Triple Aim



Institute for Healthcare Improvement, 2005

Appendix B

Design of a Triple Aim Enterprise



Institute for Healthcare Improvement, 2012

Appendix C***The distribution of satisfaction questionnaire scores.***

	<i>N</i>	<i>Mean</i>	<i>STD</i>	<i>Median</i>	<i>Minimum</i>	<i>Maximum</i>
<i>Participant average scores on Q1 through Q16</i>	6	4.5	1.2	4.97	2.13	5.00
<i>Q17</i>	5	4.4	1.3	5.00	2.00	5.00